

B<sup>1</sup>  
cont

said source of pressurized gas and a pneumatic actuator for opening and closing the said shut-off valve, test means for testing said emergency shut-off valve without fully closing said emergency shut-off valve in response to a signal from said control means, said test means including a second solenoid, a second solenoid valve for bleeding off pressurized gas to thereby move said emergency shut-off valve from full opened position to a partially closed position, means for limiting the movement of said emergency shut-off valve to a partially closed position as a result of the bleeding off of pressurized gas and means for detecting actual movement of said emergency shut-off valve.

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~~8~~ 3. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1 which includes an isolation valve between said second solenoid valve said pneumatic actuator for isolating the said second solenoid valve from the rest of the system.

~~9~~ 4. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1, which includes a control sequence programmed into said control means for initiating a partial stroke test on said shut-off valve.

~~11~~ 5. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1, in which the means for detecting the movement of the said emergency shut-off valve is a limit switch.

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~~14~~ 6. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1, which bleeds pressurized gas from pneumatic actuator during partial stroke checking of emergency shut-off valve.

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8. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 4, in which backup means for terminating the partial stroke test is a timer programmed into the partial stroke testing system controller.

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9. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1 which bleeds pressurized air from the system during emergency closure (trip) of the said emergency shut-off valve to enhance the bleed rate and act as a backup to the main solenoid valve and quick exhaust valve in the event of unsafe failure to the said main solenoid valve and quick exhaust valve.

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10. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1 which includes means of monitoring the full stroke travel time of said emergency shut-off valve in the event of emergency closure of the said emergency shut-off valve as a result of a trip signal from said control means.

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11. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1, which includes means preventing inadvertent manual opening of the said emergency shut-off valve, subsequent emergency closure of the said emergency shut-off valve as a result of a trip signal from the control means and prior to reset of trip signal in the plant emergency shutdown system controller.

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12. A partial stroke testing system for online testing of an emergency shut-off valve according to claim 1 which includes means for initiating partial stroke test manually or at programmed intervals from a computer interfaced to said control means and to generate printed report of test results.